

What is claimed is:

1. A linear electric machine comprising:

a plurality of teeth circumferentially disposed to surround a space;
a yoke disposed around the teeth and magnetically connected to the teeth;

a plurality of coils mounted on the teeth; and

a movable core disposed in the space opposite the teeth to reciprocate transversely to the teeth, said movable core having a plurality of first permanent magnets at axially opposite ends for supplying magnetic flux to the teeth;

wherein said movable core comprises means for suppressing generation of a magnetic field disposed to magnetically separate the permanent magnets.

2. A linear electric machine comprising:

a movable core disposed to be able to reciprocate along an axial direction;

a plurality of magnetic teeth disposed to face the movable core;
and

a plurality of coils mounted on the teeth;

wherein said movable core comprises magnetically shielding means for suppressing generation of a magnetic field and a pair of permanent magnets respectively disposed on the opposite sides of the shielding means in the axial direction.

3. The linear electric machine as claimed in claim 2,

wherein said magnetic teeth extend perpendicularly to the axial direction of said movable core.

4. The linear electric machine as claimed in claim 2,
wherein said magnetically shielding means is made of a non-magnetic material.

5. The linear electric machine as claimed in claim 2,
wherein said magnetically shielding means comprises a second permanent magnet that has opposite polarity to the first permanent magnets.

6. The linear electric machine as claimed in claim 2,
wherein said movable core further comprises a inductor made of magnetic material disposed in a magnetic path between the first permanent magnets and the teeth.

7. The linear electric machine as claimed in claim 2, further comprising a plurality of magnetic inductors,

wherein said first permanent magnets are disposed around a center of a plane that is perpendicular to the reciprocating direction of said movable core and polarized in directions perpendicular to the reciprocating direction, and said magnetic inductors are disposed between said first permanent magnets in the direction perpendicular to the reciprocating direction, and

wherein a center line (L1) of each said first permanent magnet in a radial direction inclines to a center line (L2) of the teeth.

8. The linear electric machine as claimed in claim 7,
wherein said first permanent magnets project from said inductors
to be located between the adjacent teeth.

9. The linear electric machine as claimed in claim 7,
wherein said movable core has a magnet shielding member at the
center of the cross-section perpendicular to the reciprocating direction of
said movable core.

10. The linear electric machine as claimed in claim 2,
wherein said coils are connected to an ac power source to
reciprocate said movable core.

11. The linear electric machine as claimed in claim 2,
wherein said movable core is connected to means for reciprocating
to generate electric power at the coils.